AMENDMENT TO THE CLAIMS

The listing of the claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS

Please amend the claims as follows:

(Original) A cellular telephony searcher comprising:

a plurality of correlators for correlating a received signal with a pseudonoise sequence;

an input mechanism for inputting said pseudonoise sequence into said correlators, each of said correlators receiving said pseudonoise sequence with a different delay; and

a delay management mechanism for initializing said delays and subsequently changing said delays, said changing being contingent, for each said correlator, only on an output of said each correlator.

2.(Original) The searcher of claim 1, wherein each said correlator correlates said received signal with said pseudonoise sequence at said respective delay for a correlation time selected from the group consisting of a first dwell time and a sum of said first dwell time and a second dwell time, said selection being performed separately for each said correlator.

3. (Original) The searcher of claim 1, wherein, for each said correlator, said delay management mechanism changes said delay corresponding to said each correlator if an estimated absolute value of said output of said each correlator is less than a threshold common to all said correlators, independent of an estimated absolute value of said output of any other said correlator.

4. (Original) The searcher of claim 1, wherein said input mechanism includes:

a pseudonoise sequence generator for generating said pseudonoise sequence; and

a delay line for receiving said pseudonoise sequence and outputting a plurality of copies of said pseudonoise sequence, each said copy being outputted with a different said delay.

5. (Original) The searcher of claim 4, wherein said delay management mechanism includes:

for each said correlator, an index register; and

a multiplexer for directing one of said copies of said pseudonoise sequence to each said correlator in accordance with an index value stored in said index register of said each correlator.

6. (Original) In a cellular telephony network including at least one base station and at least one mobile station, each of the at least one mobile station receiving a received signal

from the at least one base station, the received signal including a plurality of received values, each said received value having a real part and an imaginary part, a method for each of the at least one mobile station to identify at least one multipath channel to use to communicate with one of the at least one base station, comprising:

generating a pseudonoise sequence;

simultaneously performing a plurality of initial correlations of the received signal with said pseudonoise sequence, each of said initial correlations being performed with a different initial delay of said pseudonoise sequence, said initial correlations being performed for a first dwell time to produce, for each of said initial correlations, an initial first dwell time correlation value; and

for each said initial correlation:

if an estimated absolute value of said initial first dwell time correlation value exceeds a threshold, continuing to perform said each initial correlation, otherwise, performing a first subsequent correlation of the received signal with said pseudonoise sequence at a first subsequent delay different from any of said initial delays;

wherein, if said performing of at least one of said initial correlations is continued and if at least one of said first subsequent correlations is performed, said continued performing of said at least one initial correlation and said performing of said at least one first subsequent correlation are effected simultaneously.

7. (Original) The method of claim 6, wherein, if a plurality of said first subsequent correlations are performed, said first subsequent delays all are mutually different.

8. (Original) The method of claim 6, wherein said continued performing of said initial correlations is effected for a second dwell time to produce a second dwell time correlation value.

9. (Original) The method of claim 8, wherein said second dwell time is an integral multiple of said first dwell time.

10. (Original) The method of claim 6, wherein successive said initial delays differ by a common increment.

11. (Original) The method of claim 10, wherein said pseudonoise sequence includes a plurality of chips generated at a certain chip interval, and wherein said common increment is an integral fraction of said chip interval.

12. (Original) The method of claim 6, wherein said first subsequent correlations are performed for said first dwell time to produce, for each of said first subsequent correlations, a subsequent first dwell time correlation value, the method further comprising:

for each said first subsequent correlation:

if an estimated absolute value of said subsequent first dwell time correlation value exceeds a threshold, continuing to perform said each first subsequent correlation;

otherwise, performing a second subsequent correlation of the received signal with said pseudonoise sequence at a second subsequent delay different from any of said initial delays and from any of said first subsequent delays.

13. (Original) The method of claim 12, wherein, if said performing of at least one continued correlation, selected from the group consisting of said initial correlations and said first subsequent correlations, is continued, and if at least one of said second subsequent correlations is performed, said continued performing of said at least one continued correlation and said performing of said at least one second subsequent correlation are effected simultaneously.

14. (Original) The method of claim 6, further comprising:

if, after said simultaneous initial correlations are completed up to said first dwell time, all of said delays, whereat said initial correlations are continued and whereat said first subsequent correlations are performed, exceed a shortest initial delay, pausing said generating of said pseudonoise sequence.

15. (Original) The method of claim 14, wherein said pausing of said generating of said pseudonoise sequence is effected for a difference between a shortest said delay, whereat said initial correlations are continued and whereat said first subsequent correlations are performed, and said shortest initial delay.

16. (Original) The method of claim 6, wherein said correlations are performed using only arithmetical operations selected from the group consisting of additions and subtractions.

17. (Original) The method of claim 16, wherein each said correlation is performed as a sum of a plurality of terms, each said term being selected from the group consisting of the real part of a corresponding received value, a negative of the real part of said corresponding received value, the imaginary part of said corresponding received value, and a negative of the imaginary part of said corresponding received value.

18. The method of claim 16, further comprising:

normalizing said correlations.

19. (Original) The method of claim 16, wherein each said correlation is performed as a sum of a plurality of terms, each said term being selected from the group consisting of a sum of the real part of a corresponding received value and the imaginary part of said corresponding received value, a negative of said sum of the real part of said corresponding

received value and the imaginary part of said corresponding received value, a difference of the real part of said corresponding received value and the imaginary part of said corresponding received value, and a negative of said difference of the real part of said corresponding received value and the imaginary part of said corresponding received value.

20. (Original) The method of claim 6, further comprising:

rotating said pseudonoise sequence by 45.degree. prior to performing said correlations.

21. (Original) The method of claim 20, further comprising:

normalizing said correlations.

22. (Original) The method of claim 6, wherein said estimated absolute value of said initial first dwell time correlation value is a piecewise linear approximation of an exact absolute value of said initial first dwell time correlation value.

23. (Original) The method of claim 22, wherein said piecewise linear approximation is a piecewise linear combination of a larger of an absolute value of a real part of said initial first dwell time and an imaginary part of said initial first dwell time with a smaller of said absolute value of said real part of said initial first dwell time and said absolute value of said imaginary part of said initial first dwell time.

24.(Previously Presented) A wireless communication device comprising:

a searcher having at least first and second correlators to correlate a received signal with a pseudonoise sequence provided to the first and second correlators;

a delay line operably coupled to a multiplexer to provide at least first and second delays to the pseudonoise sequence provided to the first and second correlators; and

a next location unit to decide to change at least the first delay of the first correlator based, at least in part, on an output of the first correlator.

25. (Previously Presented) The wireless communication device of claim 24, wherein at least one correlator of said at least first and second correlators is able to correlate the received signaql within a correlation time selected from a group consisting of a first dwell time, and a sum of the first dwell time and a second dwell time.

26. (Previously presented) The wireless communication device of claim 24, wherein the next location unit is able to decide to change at least the first delay by comparing an estimated absolute value of the output of the first correlator to a threshold.

27. (Previously Presented) The wireless communication device of claim 26, wherein the threshold comprises a first dwell time.

28. (Previously Presented) A method comprising:

correlating a a received signal with a pseudonoise sequence using two or more correlators; and

changing a first delay applied to the pseudonoise sequence of at least one correlator of the two or more correlators independently from a second delay applied to the pseudonoise sequence at one other correlator of the two or more correlators based, at least in part, on an output of said at least one correlator.

29. (Previously Presented) The method of claim 28, wherein correlating comprises:

Correlating the received signal within a correlation time selected from a group consisting of a first dwell time and a sum of the first dwell time and a second dwell time.

30. (Previously Presented) The method of claim 29, wherein changing comprises changing the first delay by comparing an estimated absolute value of the output of said at least one correlator to a threshold.

31. (Currently Amended) The method of claim 30 further comprising:

correlating the received signal [at] within the first dwell time to provide a correlation output;

comparing the estimated absolute value of the correlation output to said threshold; and

correlating the received signal at the second dwell time if said threshold is exceeded.

32. (Previously Presented) The method of claim 30, wherein changing comprises:

Changing at least the first delay if said threshold is not exceeded.

33. (Previously Presented) The method of claim 31 comprising:

identifying a base station based on the result of correlating the received signal during the second dwell time.

34. (Previously Presented) A cellular communication system comprising:

a mobile station including a searcher having at least first and second correlators, wherein at least the first correlator of the at least first and second correlators is able to correlate to a received signal by changing a first delay applied to a pseudonoise sequence of the received signal at the first correlator independently from a second delay applied to said pseudonoise sequence at the second correlator based, at least in part, on an output of said first correlator.

35. (Currently Amended) The cellular communication system of claim 34, wherein the searcher comprises:

a delay line operably coupled to a multiplexer to provide at least first and second delays to the pseudonoise sequence provided to the first and second correlators, respectively; and

a next location unit to [decide to] change at least the first delay of the first correlator based, at least in part, on an output of the first correlator.

36. (Previously Presented) The cellular communication system of claim 34, wherein at least one correlator of said at least first and second correlators is able to correlate the received signal within a correlation time selected from a group consisting of a first dwell time, and a sum of the first dwell time and a second dwell time.

37. (Currently Amended) The cellular communication system of claim 35, wherein the next location unit [is able to decide] determines whether to change at least the first delay by comparing an estimated absolute value of the output of said at least first correlator to a threshold.

38. (Currently Amended) A communication device comprising:

an antenna to receive a signal having a pseudonoise sequence; and

a mobile station including a searcher having at least first and second correlators, wherein at least the first correlator of the at least first and second correlators is able to correlate to a received signal by changing a first delay applied to a pseudonoise sequence

of the received signal at the first correlator independently from a second delay applied to said pseudonoise sequence at the second correlator based, at least in part, on an output of said first correlator.

39. (Previously Presented) The communication device of claim 38, wherein the searcher comprises:

a delay line operably coupled to a multiplexer to provide at least first and second delays to the pseudonoise sequence provided to the first and second correlators, respectively; and

a next location unit to decide to change at least the first delay of the first correlator based, at least in part, on an output of the first correlator.

40. (Previously Presented) The communication device of claim 38, wherein at least one correlator of said at least first and second correlators is able to correlate the received signal within a correlation time selected from a group consisting of a first dwell time, and a sum of th efirst dwell time and a second dwell time.

41. (Previously Presented) The communication device of claim 39, wherein the next location unit us able to decide to change at least the first delay by comparing an estiamted absolute value of the output of said at least first correlator to a threshold.

42. (Currently Amended) An article comprising[:] a storage medium, having stored thereon instructions, that when executed, result in:

correlating a received signal with a pseudonoise sequence using two or more correlators; and

changing a first delay applied to the pseudonoise sequence of at least one correlator of the two or more correlators independently form a second delay applied to the pseudonoise sequence at one other correlator of the two or more correlators based, at least in part, on an output of said at least one correlator.

43. (Previously Presented) The article of claim 42, wherein the instructions when executed, result in:

correlating the received signal within a correlation time selected from a group consisting of a first dwell time and a sum of the first dwell time and a second dwell time.

44. (Previously Presented) The article of claim 42, wherein the instruction of changing when executed, result in:

changing the first delay by comparing an estimated absolute value of the output of said at least on correlator to a threshold.

45. (Previously Presented) The article of claim 44, wherein the instructions when executed, result in:

correlating the received signal [at] within the first dwell time to provide a correlation output;

comparing the estimated absolute value of the correlation output to said threshold; and

correlating the received signal at the second dwell time if said threshold is exceeded.

46. (Previously Presented) The article of claim 44, wherein the instructions, when executed, result in:

changing at least the first delay if said threshold is not exceeded.

47. (Previously Presented) The article of claim 46, wherein the instructions when executed, result in:

identifying a base station based on the result of correlating the received signal during the second dwell time.